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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/510,183

09/30/2004

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EXAMINER

MOWLA, GOLAM

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/510,183	Applicant(s) RANSQUIN ET AL.	
	Examiner GOLAM MOWLA	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/02/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

Response to Amendment

1. Applicant's amendment of 01/02/2009 does not place the Application in condition for allowance.
2. Claims 1-7 are currently pending. Applicant has amended claims 1-6, and cancelled claims 8-9.

Status of the Objections or Rejections

3. The objections to the Drawings are withdrawn in view of Applicant's amendment.
4. Due to Applicant's amendment of claims 1-6, all rejections from the office Action mailed on 10/02/2008 are withdrawn. However, upon further consideration, a new ground of rejection is/are presented below.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1, 3-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereafter "AAPA") in view of Horne et al. (US 5611870).

Regarding claim 1, AAPA discloses a concentrator photovoltaic generator (see fig. 1 and page 1, line 1 through page 2 line 24 of Applicant's Specification), comprising

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at least one photoelectric cell (photovoltaic cell 101, fig. 1) covered by a transparent protection layer (transparent protection layer 102, fig. 1) and further comprising a reflecting concentrator (concentrator 106, fig. 1) for directing luminous flux (108, fig. 1) toward said photoelectric cell (101, fig. 1), said concentrator (106, fig. 1) having a reflecting surface (surface which receives flux 107) for reflecting incident radiation (incident solar flux 107).

However, the reference is silent as to whether the reflecting surface (surface which receives flux 107) of said concentrator (106, fig. 1) is covered by a filter such that incident radiation (107) must pass through said filter to reach said reflecting surface (surface which receives flux 107) in order to be reflected, and after reflection by said reflecting surface (surface which receives flux 107) must pass again through said filter in order to be directed toward said photoelectric cell (101, fig. 1), said filter eliminating in the luminous flux (108, fig. 1) directed by the concentrator (106, fig. 1) toward the photoelectric cell (101, fig. 1) most of the "unwanted" radiation that is not able to excite the photoelectric cell (101, fig. 1).

Horne discloses a concentrator photovoltaic generator wherein a filter array (172, fig. 36) which covers a surface of the concentrator (concentrator 170, fig. 36) that receives radiation (see fig. 38) and filters out the unwanted radiation and transmits the wanted radiation to the surface of the concentrator (170) (abstract, fig. 36, col. 11, lines 17-23) to produce desired spectral bandwidth profile such that the energy conversion efficiency of the photovoltaic cell (174) can be optimized (col. 1, line 48 through col. 2, line 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the filter array of Horne in the generator of AAPA such that the energy conversion efficiency of the photovoltaic cell can be optimized by producing desired spectral bandwidth profile, as shown by Horne.

AAPA in view of Horne discloses that the reflecting surface (surface which receives flux 107) of said concentrator (106, fig. 1) is covered by a filter (172 of Horne) such that incident radiation (107) must pass through said filter to reach said reflecting surface (surface which receives flux 107) in order to be reflected, and after reflection by said reflecting surface (surface which receives flux 107) must pass again through said filter (172 of Horne) in order to be directed toward said photoelectric cell (101, fig. 1), said filter eliminating in the luminous flux (108, fig. 1) directed by the concentrator (106, fig. 1) toward the photoelectric cell (101, fig. 1) most of the "unwanted" radiation that is not able to excite the photoelectric cell (101, fig. 1).

Regarding claims 3 and 5, Applicant is directed above for complete discussion of AAPA in view of Horne with respect to claim 1, which is incorporated herein. Applicant has failed to provide any evidence as to whether changing the thickness pattern of the filter layer would provide better filtration of the unwanted radiation, and also failed to provide any criticality in changing the thickness pattern. Therefore, one reading AAPA in view of Horne as a whole would have readily appreciated that any kind of thickness pattern for the filter layer can be used as long as it reflects back the unwanted radiation (col. 1, lines 48-61), as desired by Horne. Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined any desired

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thickness pattern of the filter layer because it is a matter of choice which a person of ordinary skill in the art would have found obvious. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See also MPEP § 2144.04 IVB.

Regarding claim 4, AAPA in view of Horne further shows that the filter (172) is formed of a filter layer whose exterior face is oriented to divert this “unwanted” radiation away from the photoelectric cell (fig. 36 of Horne) (col. 1, lines 48-61).

Regarding claim 7, AAPA in view of Horne further shows that the filter (172) is formed of a material reflecting the “unwanted” portion of the radiation (col. 1, lines 48-61).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Horne as applied to claim 1 above, and further in view of Chappell et al. (US 4200472).

Applicant is directed above for complete discussion of AAPA in view of Horne with respect to claim 1, which is incorporated herein. The references are silent as to whether the filter layer is made from materials absorbing the unwanted portion of the radiation.

Chappell discloses a solar power system wherein a filter made of materials absorbing the unwanted portion of the radiation is utilized to filter out the longer wavelength radiation which has insufficient energy to form electron hole-pairs in the photovoltaic cell (col. 3, line 46 through col. 4, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the filter of Chappell which is made of materials

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absorbing the unwanted portion of the radiation in the generator of AAPA in view of Horne such that the longer wavelength radiation which has insufficient energy to form electron hole-pairs in the photovoltaic cell can be filtered out.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Horne as applied to claim 4 above, and further in view of Leinkram (US 3839108, as cited in previous office action).

Applicant is directed above for complete discussion of AAPA in view of Horne with respect to claim 4, which is incorporated herein. The references fail to disclose that the exterior face of the transparent layer forming the filter is etched to form Fresnel steps.

Leinkram discloses Fresnel lens to receive solar radiation (col. 1, lines 15-19) and further discloses the method of etching the exterior face of the transparent layer to form Fresnel steps (col. 4, lines 65-68). Also, Leinkram teaches that the precision in the disclosed etching method allows to construct a theoretically ideal Fresnel zone plate (col. 5, lines 7-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the etching methods as taught by Leinkram to the concentrator photovoltaic generator of AAPA in view of Horne in order to construct a theoretically ideal Fresnel lens/zone plate and therefore increase the reflection.

Response to Arguments

9. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground of rejection as necessitated by the amendments.

Applicant argues that "The examiner again relies on Osborn to teach a reflecting concentrator. It does not. The Fresnel lens in Osborn is not a reflecting concentrator" (Remarks, page 2).

The Examiner respectfully disagrees. Even if Fresnel lens is not reflective-type concentrator, Osborn explicitly mentions to use of other kind of concentrator ("other concentrator" as labeled in fig. 6), which can be reflective-type concentrator (as shown in §3.1 of page 318).

Applicant also argues that "there is no obvious combination of the teachings of the applied art which will result in a filter layer through which light passes both before and after reflection by the reflecting surface of the concentrator" (see Remarks, page 3).

This argument is directed to the claims as amended and is moot in view of new ground of rejection as provided above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GOLAM MOWLA whose telephone number is (571) 270-5268. The examiner can normally be reached on M-F, 0900-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ALEXA NECKEL can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. M./

Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795